

## PATENT ABSTRACTS OF JAPAN

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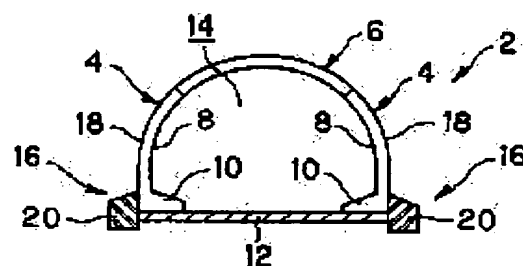
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## (54) SUPPORT STRUCTURE FOR HOLLOW STRUCTURE

## (57)Abstract:

PROBLEM TO BE SOLVED: To prevent the movement in the width direction of side wall members by providing movement preventing means at the lower edges of two side wall members erected face to face in the width direction.

SOLUTION: Two side wall members 4 are erected face to face in the width direction on the ground so that inside protruded edge sections 10 self-stand on a foundation, an upper member 6 is fayed to the side wall members 4 astride in the width direction, and the side wall members 4 and upper member 6 are connected in the longitudinal direction to construct a hollow structure 2. Pressing members 20 serving as movement preventing means 16 are provided in contact with the outer faces 18 of the lower edges of the side wall members 4 adjoining in the longitudinal direction. The tendency that the lower edges of the side wall members 4 are moved to the outside in the width direction by the load applied from above such as the soil cover and the tare weight of the upper member 6 is suppressed by the pressing members 20, and the lower edges of the side wall members 4 are prevented from spreading.



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CLAIMS

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[Claim(s)]

[Claim 1]It consists of at least 3 members with an upper plate member joined so that two side wall members by which an opposite set-up is carried out crosswise, and these side wall members may be straddled crosswise, In a hollow structure which forms space which connects with a longitudinal direction two side wall members and upper plate members which were these-joined, and to which it points inside at a longitudinal direction, The supporting structure of a hollow structure establishing a movement preventing means which prevents each margo inferior of said two side wall members by which an opposite set-up is carried out from moving crosswise.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the supporting structure of a hollow structure, especially, can support strongly two side wall members of a hollow structure by which opposite allocation is carried out, and relates to the hollow structure which can prevent movement crosswise.

[0002]

[Description of the Prior Art]There is a hollow structure in the structure of the tunnel shape aiming at formation of protection of a road, a railway track, etc., a waterway, etc. There are a thing of a monolithic construction and a thing of hyperfractionation type structure in this hollow structure.

[0003]There are some which join, connect with a longitudinal direction two side wall members and upper plate members which were these-joined, and form space in an inside so that two side wall members by which an opposite set-up is carried out may be straddled in an upper plate member in the hollow structure of the conventional hyperfractionation type structure.

[0004]

[Problem(s) to be Solved by the Invention]By the way, in the conventional hollow structure, loads, such as soil covering on an upper plate member and prudence of an upper plate member, act on two side wall members from the upper part by having joined so that two side wall members by which an opposite set-up is carried out crosswise may be straddled in an upper plate member.

[0005]For this reason, each margo inferior of two side wall members moved the hollow structure crosswise according to the load which acts from the upper part, and there was a possibility of changing crosswise.

[0006]

[Means for Solving the Problem]Then, it consists of at least 3 members with an upper plate member joined so that two side wall members by which an opposite set-up is carried out crosswise, and these side wall members may be straddled crosswise, in order that this invention may remove above-mentioned inconvenience, In a hollow structure which forms space which connects with a longitudinal direction two side wall members and upper plate members which were these-joined, and to which it points inside at a longitudinal direction, a movement preventing means which prevents each margo inferior of said two side wall members by which an opposite set-up is carried out from moving crosswise was established.

[0007]

[Embodiment of the Invention]The supporting structure of the hollow structure of this invention can prevent each margo inferior of the side wall member by which an opposite set-up is carried out from moving crosswise by having established the movement preventing means which prevents each margo inferior of two side wall members by which an opposite set-up is carried out from moving crosswise.

[0008]

[Example]Based on a drawing, the example of this invention is described below. Drawing 1 and drawing 2 show the 1st example of this invention. As for 2, in a figure, a side wall member and 6 are upper plate members a hollow structure and 4. This hollow structure 2 consists of at least 3 members with the upper plate member 6 joined to the two side wall members 4 and 4 and these side wall members 4 and 4.

[0009]The side wall member 4 has the structure of making a longitudinal direction pointing to the inside protruding edge part 10 projected by the inner surface 8 of the margo inferior inside, and providing, among these becoming independent by the side impact edge 10. The upper plate member 6 is formed in the shape of [ which curves crosswise ] a vault.

[0010]As shown in drawing 1, this hollow structure 2 makes the two side wall members 4 and 4 become independent on the foundation 12 by the inside protruding edge parts 10 and 10, respectively, and carries out an opposite set-up crosswise, It joins by the join means which does not illustrate the upper plate member 6 so that these two side wall members 4 and 4 may be straddled crosswise, and as shown in drawing 2, the space 14 which connects with a longitudinal direction the two side wall members 4 and 4 and upper plate members 6 which were these-joined and to which it points inside at a longitudinal direction is formed.

[0011]In the hollow structure 2 which consists of at least 3 members of such two side wall members 4 and 4 and upper plate members 6, the movement preventing means 16 which prevents each margo inferior of said two side wall members 4 and 4 by which an opposite set-up is carried out from moving crosswise is established.

[0012]The movement preventing means 16 of the 1st example has formed the presser-foot members 20 and 20 contacted, respectively in each outside surfaces 18 and 18 of the margo

inferior of the two side wall members 4 and 4. These presser-foot members 20 and 20 are continuously formed in one covering the overall length of the longitudinal direction of the hollow structure 2 so that it may be contacted by each outside surfaces 18 and 18 of the margo inferior of each side wall members 4 and 4 which adjoin a longitudinal direction, respectively. The presser-foot members 20 and 20 can also be formed with cast-in-place concrete.

[0013]Next, an operation is explained.

[0014]When building the hollow structure 2, make the two side wall members 4 and 4 become independent on the foundation 12 by the inside protruding edge parts 10 and 10 on the foundation, respectively, and an opposite set-up is carried out crosswise, The space 14 which joins by the join means which does not illustrate the upper plate member 6 so that these side wall members 4 and 4 may be straddled crosswise, and connects with a longitudinal direction the two side wall members 4 and 4 and upper plate members 6 which were these-joined and to which it points inside at a longitudinal direction is formed.

[0015]The hollow structure 2 which connected with the longitudinal direction the two side wall members 4 and 4 and upper plate members 6 which were joined, and formed the space 14 in the inside made the presser-foot members 20 and 20 which are the movement preventing means 16, respectively contact each outside surfaces 18 and 18 of the margo inferior of the side wall members 4 and 4 which adjoin a longitudinal direction, and is provided in them.

[0016]Thereby, this hollow structure 2 can prevent each margo inferior of the two side wall members 4 and 4 from pressing down by the presser-foot members 20 and 20, and spreading, even if each margo inferior of the two side wall members 4 and 4 tends to move to the crosswise outside according to the load which acts from the upper parts, such as soil covering and prudence of the upper plate member 6.

[0017]For this reason, the supporting structure of this hollow structure 2 can support strongly the two side wall members 4 and 4 by which opposite allocation is carried out, and can prevent the modification to the cross direction.

[0018]Drawing 3 and drawing 4 show the 2nd example of this invention. The hollow structure 2 of the 2nd example consists of the upper plate member 6 joined to the two side wall members 4 and 4 and these side wall members 4 and 4, While making a longitudinal direction point to the inside protruding edge parts 10 and 10 projected by each inner surface 8 of the margo inferior of the two side wall members 4 and 4 by which an opposite set-up is carried out inside and providing them, respectively, The longitudinal direction was made to point on each outside surfaces 18 and 18 of the margo inferior of the two side wall members 4 and 4 to the outside protruding edge parts 22 and 22 projected outside, and they are provided in them, respectively.

[0019]This hollow structure 2 makes the two side wall members 4 and 4 become independent on the foundation 12 by the inside protruding edge parts 10 and 10 and the outside protruding

edge parts 22 and 22, respectively, and carries out an opposite set-up crosswise, The space 14 which joins by the join means which does not illustrate the upper plate member 6 so that these two side wall members 4 and 4 may be straddled crosswise, and connects with a longitudinal direction the two side wall members 4 and 4 and upper plate members 6 which were these-joined and to which it points inside at a longitudinal direction is formed.

[0020]The supporting structure of the hollow structure 2 of this 2nd example has formed the connecting member 24 which connects the inside protruding edge parts 10 and 10 and the outside protruding edge parts 22 and 22 of the margo inferior of the two side wall members 4 and 4 as the movement preventing means 16.

[0021]Said connecting member 24 is formed in the beam shape which connects each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 by which an opposite set-up is carried out. The connecting member 24 is connected by the connecting tool which does not illustrate the both ends to which it points crosswise in each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4. The connecting member 24 can also be formed with cast-in-place concrete.

[0022]The supporting structure of the hollow structure 2 of the 2nd example by having formed the connecting member 24 of the beam shape which connects each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 by which an opposite set-up is carried out as the movement preventing means 16, Tensile force can be made to act on each margo inferior of the two side wall members 4 and 4, and while being able to prevent each margo inferior of the two side wall members 4 and 4 from spreading, each margo inferior of the two side wall members 4 and 4 can be prevented from making thrust act on each margo inferior of the two side wall members 4 and 4, and narrowing inside.

[0023]For this reason, the supporting structure of the hollow structure 2 of the 2nd example can support more strongly the two side wall members 4 and 4 by which opposite allocation is carried out, and can prevent the modification to the cross direction still more certainly.

[0024]Drawing 5 and drawing 6, and the 3rd example of this invention are shown. The hollow structure 2 of the 3rd example is constituted like the hollow structure 2 of the 2nd example. The supporting structure of the hollow structure 2 of this 3rd example has formed the holddown member 24 of the floor system shape which supports each inside protruding edge parts 10 and 10 and each outside protruding edge parts 22 and 22 which protruded, respectively in the margo inferior of each side wall members 4 and 4 as the < movement preventing means 16.

[0025]the length on the longitudinal direction of the hollow structure 2, and covering an overall length in the holddown member 24 -- and it being formed in the floor system shape of the width which exceeds the outside protruding edge parts 22 and 22 of the margo inferior of the two side wall members 4 and 4 in the cross direction, and, The bolt 26 for inside immobilization and the bolt 28 for outside immobilization are implanted in the position in which the inside

protruding edge parts 10 and 10 and the outside protruding edge parts 22 and 22 of the two side wall members 4 and 4 by which an opposite set-up is carried out are installed.

[0026]The inside fixation hole 30 and the outside fixation hole 32 in which the bolt 26 for inside immobilization and the bolt 28 for outside immobilization are inserted, respectively are established in said inside protruding edge parts 10 and 10 and the outside protruding edge parts 22 and 22.

[0027]each of each inside protruding edge parts 10 and 10 of the two side wall members 4 and 4 by which the opposite set-up of the bolt 26 for inside immobilization and the bolt 28 for outside immobilization is carried out, and each outside protruding edge parts 22 and 22 -- it is inserted in the inside fixation hole 30 and the outside fixation hole 32, and the nut 34 for inside immobilization and the nut 36 for outside immobilization are screwed on, respectively.

[0028]The supporting structure of the hollow structure 2 of the 3rd example as the movement preventing means 16, The bolt 26 for inside immobilization and the bolt 28 for outside immobilization are implanted in the holddown member 24 installed in the foundation, The inside fixation hole 30 and the outside fixation hole 32 where said bolt 26 for inside immobilization and the bolt 28 for outside immobilization are inserted in the holddown member 24 at each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 and each outside protruding edge parts 22 and 22 by which an opposite set-up is carried out are provided.

[0029]The hollow structure 2 inserts said bolt 26 for inside immobilization, and the bolt 32 for outside immobilization in the inside fixation hole 30 and the outside fixation hole 32 which were established in each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 and each outside protruding edge parts 22 and 22 by which an opposite set-up is carried out, By screwing the nut 30 for inside immobilization, and the nut 36 for outside immobilization on the bolt 26 for these inside immobilization, and the bolt 28 for outside immobilization, Even if each margo inferior of the two side wall members 4 and 4 tends to move to the crosswise outside or the inside, It can prevent narrowing, while being able to prevent each margo inferior of the two side wall members 4 and 4 from pressing down with the bolt 26 for inside immobilization of the movement preventing means 16 and the bolt 28 for outside immobilization, the nut 34 for inside immobilization, and the nut 36 for outside immobilization, and spreading.

[0030]For this reason, the supporting structure of the hollow structure 2 of the example of the 3rd \*\* can support strongly the two side wall members 4 and 4 by which opposite allocation is carried out with the bolts 26 and 28 and the nuts 34 and 36, and can prevent the modification to the cross direction certainly.

[0031]Drawing 7 and drawing 8, and the 4th example of this invention are shown. The hollow structure 2 of the 4th example is constituted like the hollow structure 2 of the 2nd example. The

supporting structure of the hollow structure 2 of this 4th example has formed the connecting member 38 which connects each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 by which the opposite set-up was carried out on the foundation 12 as the movement preventing means 16.

[0032]the length on the longitudinal direction of the hollow structure 2, and covering an overall length in the connecting member 38 -- and it being formed in the floor system shape of the width which reaches each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 in the cross direction, being provided on the foundation 12, and, It is connected by the connecting tool which does not illustrate each crosswise side edge in each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 by which an opposite set-up is carried out. The connecting member 38 can also be formed with cast-in-place concrete.

[0033]While the supporting structure of the hollow structure 2 of the 4th example connects each inside protruding edge parts 10 and 10 of the margo inferior of the two side wall members 4 and 4 by which an opposite set-up is carried out as the movement preventing means 16, By having formed the connecting member 38 which connects each inside protruding edge parts 10 and 10 of the margo inferior of all the two side wall members 4 and 4 which are connected with a longitudinal direction, and which counter, While being able to prevent certainly each margo inferior of these two side wall members 4 and 4 from making tensile force act on each margo inferior of the two side wall members 4 and 4, and spreading, each margo inferior of these side wall members 4 and 4 can be prevented from making thrust act on each margo inferior of the two side wall members 4 and 4, and narrowing inside.

[0034]For this reason, the supporting structure of the hollow structure 2 of the 4th example can support strongly the two side wall members 4 and 4 by which opposite allocation is carried out covering the overall length of the hollow structure 2, and can prevent the modification to the cross direction certainly. The supporting structure of the hollow structure 2 of the 4th example can use the connecting member 38 of the movement prevention stage 16 also as a floor system member of the hollow structure 2, can make two functions of movement prevention and a floor system have, and can achieve reduction of cost.

[0035]

[Effect of the Invention]Thus, the supporting structure of the hollow structure of this invention can prevent each margo inferior of the side wall member by which an opposite set-up is carried out from moving crosswise by having established the movement preventing means which prevents each margo inferior of two side wall members by which an opposite set-up is carried out from moving crosswise.

[0036]For this reason, the supporting structure of a hollow structure can support strongly two side wall members by which opposite allocation is carried out, and this invention can prevent



the modification to the cross direction.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1]It is a front view of the hollow structure in which the 1st example of this invention is shown.

[Drawing 2]It is a side view of the hollow structure of drawing 1.

[Drawing 3]It is a front view of the hollow structure in which the 2nd example is shown.

[Drawing 4]It is a sectional view by four to 4 line of drawing 3.

[Drawing 5]It is a front view of the hollow structure in which the 3rd example is shown.

[Drawing 6]It is a side view of the hollow structure of drawing 5.

[Drawing 7]It is a front view of the hollow structure in which the 4th example is shown.

[Drawing 8]It is a sectional view by eight to 8 line of drawing 7.

[Description of Notations]

2 Hollow structure

4 Side wall member

6 Upper plate member

8 Inner surface

10 Inside protruding edge part

12 Foundation

14 Space

16 Movement preventing means

18 Outside surface

20 Presser-foot member

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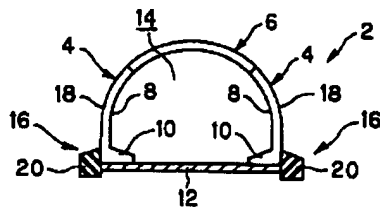
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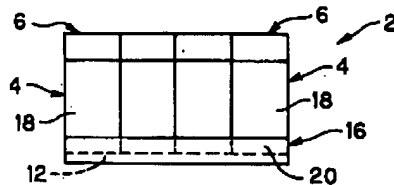
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## DRAWINGS

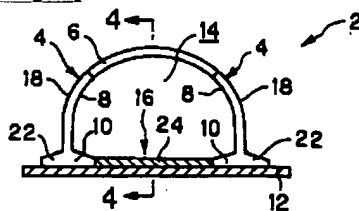
[Drawing 1]



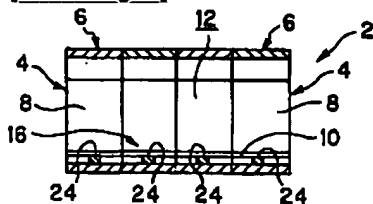
[Drawing 2]



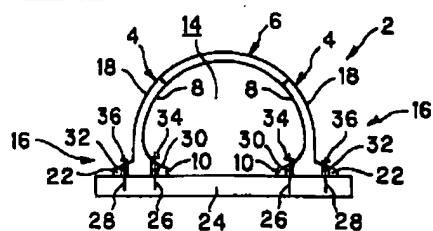
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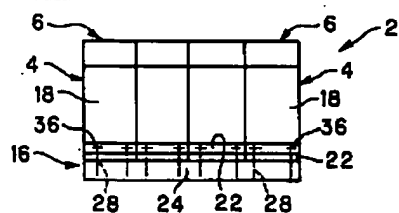
[Drawing 4]



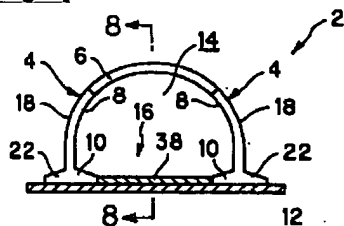
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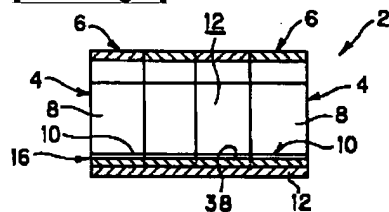
[Drawing 6]



[Drawing 7]



[Drawing 8]



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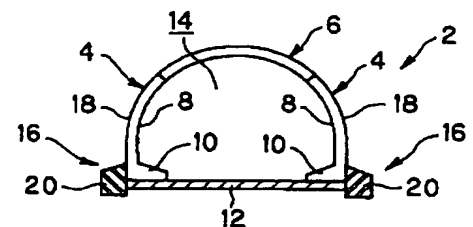
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(54) 【発明の名称】 中空構造物の支持構造

(57) 【要約】

【目的】 この発明の目的は、中空構造物の対向配設される2つの側壁部材を堅固に支持し得て、幅方向への移動を防止することにある。

【構成】 このため、この発明は、中空構造物において、幅方向に対向立設される2つの側壁部材の各下縁が幅方向へ移動することを防止する移動防止手段を設けたことを特徴とする。



## 【特許請求の範囲】

【請求項 1】 幅方向に対向立設される 2 つの側壁部材とこれら側壁部材に幅方向に跨るように接合される上版部材との少なくとも 3 部材からなり、これら接合された 2 つの側壁部材と上版部材とを長手方向に連結して内部に長手方向に指向する空間を形成する中空構造物において、幅方向に対向立設される前記 2 つの側壁部材の各下縁が幅方向へ移動することを防止する移動防止手段を設けたことを特徴とする中空構造物の支持構造。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】この発明は中空構造物の支持構造に係り、特に、中空構造物の対向配設される 2 つの側壁部材を堅固に支持し得て、幅方向への移動を防止し得る中空構造物に関する。

## 【0002】

【従来の技術】道路や鉄道軌道等の保護や水路等の形成を目的とするトンネル形状の構造物には、中空構造物がある。この中空構造物には、一体式構造のものや多分割式構造のものがある。

【0003】従来の多分割式構造の中空構造物には、対向立設される 2 つの側壁部材に上版部材を跨るように接合し、これら接合された 2 つの側壁部材と上版部材とを長手方向に連結して内部に空間を形成するものがある。

## 【0004】

【発明が解決しようとする課題】ところで、従来の中空構造物においては、幅方向に対向立設される 2 つの側壁部材に上版部材を跨るように接合していることにより、2 つの側壁部材に上方から上版部材上の覆土や上版部材の自重等の荷重が作用する。

【0005】このため、中空構造物は、上方から作用する荷重によって、2 つの側壁部材の各下縁が幅方向へ移動してしまい、幅方向へ変形するおそれがあった。

## 【0006】

【課題を解決するための手段】そこで、この発明は、上述の不都合を除去するために、幅方向に対向立設される 2 つの側壁部材とこれら側壁部材に幅方向に跨るように接合される上版部材との少なくとも 3 部材からなり、これら接合された 2 つの側壁部材と上版部材とを長手方向に連結して内部に長手方向に指向する空間を形成する中空構造物において、幅方向に対向立設される前記 2 つの側壁部材の各下縁が幅方向へ移動することを防止する移動防止手段を設けたことを特徴とする。

## 【0007】

【発明の実施の形態】この発明の中空構造物の支持構造は、幅方向に対向立設される 2 つの側壁部材の各下縁が幅方向へ移動することを防止する移動防止手段を設けたことにより、幅方向に対向立設される側壁部材の各下縁が幅方向へ移動することを防止できる。

## 【0008】

【実施例】以下図面に基づいて、この発明の実施例を説明する。図 1・図 2 は、この発明の第 1 実施例を示すものである。図において、2 は中空構造物、4 は側壁部材、6 は上版部材である。この中空構造物 2 は、2 つの側壁部材 4・4 とこれら側壁部材 4・4 に接合される上版部材 6 との、少なくとも 3 部材からなる。

【0009】側壁部材 4 は、下縁の内面 8 に内側に突出される内側突縁部 10 を長手方向に指向させて設け、この内側突縁部 10 により自立する構造となっている。上版部材 6 は、幅方向に湾曲するボールト状に形成される。

【0010】この中空構造物 2 は、図 1 に示す如く、2 つの側壁部材 4・4 を夫々内側突縁部 10・10 により基礎 12 上に自立させて幅方向に対向立設し、これら 2 つの側壁部材 4・4 に幅方向に跨るように上版部材 6 を図示しない接合手段により接合し、図 2 に示す如く、これら接合された 2 つの側壁部材 4・4 と上版部材 6 とを長手方向に連結して内部に長手方向に指向する空間 14 を形成する。

【0011】このような 2 つの側壁部材 4・4 と上版部材 6 との少なくとも 3 部材からなる中空構造物 2 において、幅方向に対向立設される前記 2 つの側壁部材 4・4 の各下縁が幅方向へ移動することを防止する移動防止手段 16 を設けている。

【0012】第 1 実施例の移動防止手段 16 は、2 つの側壁部材 4・4 の下縁の各外面 18・18 に夫々当接される押さえ部材 20・20 を設けている。この押さえ部材 20・20 は、長手方向に隣接する各側壁部材 4・4 の下縁の各外面 18・18 に夫々当接されるように、中空構造物 2 の長手方向の全長にわたり連続して一体的に設ける。なお、押さえ部材 20・20 は、現場打ちコンクリートにより形成することもできる。

【0013】次に作用を説明する。

【0014】中空構造物 2 を構築する際には、地盤上に 2 つの側壁部材 4・4 を夫々内側突縁部 10・10 により基礎 12 上に自立させて幅方向に対向立設し、これら側壁部材 4・4 に幅方向に跨るように上版部材 6 を図示しない接合手段により接合し、これら接合された 2 つの側壁部材 4・4 と上版部材 6 とを長手方向に連結して内部に長手方向に指向する空間 14 を形成する。

【0015】接合された 2 つの側壁部材 4・4 と上版部材 6 とを長手方向に連結して内部に空間 14 を形成した中空構造物 2 は、長手方向に隣接する側壁部材 4・4 の下縁の各外面 18・18 に、夫々移動防止手段 16 である押さえ部材 20・20 を当接させて設けている。

【0016】これにより、この中空構造物 2 は、覆土や上版部材 6 の自重等の上方から作用する荷重により 2 つの側壁部材 4・4 の各下縁が幅方向外側へ移動しようとしても、押さえ部材 20・20 によって押さえ、2 つの側壁部材 4・4 の各下縁が広がることを防止できる。

【0017】このため、この中空構造物2の支持構造は、対向配設される2つの側壁部材4・4を堅固に支持し得て、幅方向への変形を防止することができる。

【0018】図3・図4は、この発明の第2実施例を示すものである。第2実施例の中空構造物2は、2つの側壁部材4・4とこれら側壁部材4・4に接合される上版部材6とからなり、対向立設される2つの側壁部材4・4の下縁の各内面8に内側に突出される内側突縁部10・10を長手方向に指向させて夫々設けるとともに、2つの側壁部材4・4の下縁の各外面18・18に外側に突出される外側突縁部22・22を長手方向に指向させて夫々設けている。

【0019】この中空構造物2は、2つの側壁部材4・4を夫々内側突縁部10・10及び外側突縁部22・22により基礎12上に自立させて幅方向に対向立設し、これら2つの側壁部材4・4に幅方向に跨るように上版部材6を図示しない接合手段により接合し、これら接合された2つの側壁部材4・4と上版部材6とを長手方向に連結して内部に長手方向に指向する空間14を形成する。

【0020】この第2実施例の中空構造物2の支持構造は、移動防止手段16として、2つの側壁部材4・4の下縁の内側突縁部10・10及び外側突縁部22・22を連結する連結部材24を設けている。

【0021】前記連結部材24は、対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10を連結する梁形状に設けられる。連結部材24は、幅方向に指向する両端を2つの側壁部材4・4の下縁の各内側突縁部10・10に図示しない連結具により連結される。なお、連結部材24は、現場打ちコンクリートにより形成することもできる。

【0022】第2実施例の中空構造物2の支持構造は、移動防止手段16として、対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10を連結する梁形状の連結部材24を設けていることにより、2つの側壁部材4・4の各下縁に引張力を作用させることができ、2つの側壁部材4・4の各下縁が広がることを防止できるとともに、2つの側壁部材4・4の各下縁に押圧力を作用させて2つの側壁部材4・4の各下縁が内側にすばまることを防止できる。

【0023】このため、第2実施例の中空構造物2の支持構造は、対向配設される2つの側壁部材4・4をより堅固に支持し得て、幅方向への変形をさらに確実に防止することができる。

【0024】図5・図6、この発明の第3実施例を示すものである。第3実施例の中空構造物2は、第2実施例の中空構造物2と同様に構成されている。この第3実施例の中空構造物2の支持構造は、移動防止手段16として、各側壁部材4・4の下縁に夫々突設された各内側突縁部10・10及び各外側突縁部22・22を支持する

床版形状の固定部材24を設けている。

【0025】固定部材24は、中空構造物2の長手方向において全長にわたる長さで且つ幅方向において2つの側壁部材4・4の下縁の外側突縁部22・22を越える幅の床版形状に形成され、対向立設される2つの側壁部材4・4の内側突縁部10・10及び外側突縁部22・22が設置される位置に内側固定用ボルト26及び外側固定用ボルト28を植設している。

【0026】前記内側突縁部10・10及び外側突縁部22・22には、内側固定用ボルト26及び外側固定用ボルト28が夫々挿通される内側固定孔30及び外側固定孔32を設けている。

【0027】内側固定用ボルト26及び外側固定用ボルト28は、対向立設される2つの側壁部材4・4の各内側突縁部10・10及び各外側突縁部22・22の夫々内側固定孔30及び外側固定孔32に挿通され、夫々内側固定用ナット34及び外側固定用ナット36を螺着される。

【0028】第3実施例の中空構造物2の支持構造は、移動防止手段16として、地盤に設置された固定部材24に内側固定用ボルト26及び外側固定用ボルト28を植設し、固定部材24に対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10及び各外側突縁部22・22に前記内側固定用ボルト26及び外側固定用ボルト28の挿通される内側固定孔30及び外側固定孔32を設けている。

【0029】中空構造物2は、対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10及び各外側突縁部22・22に設けた内側固定孔30及び外側固定孔32に前記内側固定用ボルト26及び外側固定用ボルト32を挿通し、これら内側固定用ボルト26及び外側固定用ボルト28に内側固定用ナット30及び外側固定用ナット36を螺着することにより、2つの側壁部材4・4の各下縁が幅方向外側や内側へ移動しようとしても、移動防止手段16の内側固定用ボルト26及び外側固定用ボルト28と内側固定用ナット34及び外側固定用ナット36とによって押さえて、2つの側壁部材4・4の各下縁が広がることを防止できるとともにすばまることを防止できる。

【0030】このため、第3実施例の中空構造物2の支持構造は、対向配設される2つの側壁部材4・4をボルト26・28とナット34・36とにより堅固に支持し得て、幅方向への変形を確実に防止することができる。

【0031】図7・図8、この発明の第4実施例を示すものである。第4実施例の中空構造物2は、第2実施例の中空構造物2と同様に構成されている。この第4実施例の中空構造物2の支持構造は、移動防止手段16として、基礎12に対向立設された2つの側壁部材4・4の下縁の各内側突縁部10・10を連結する連結部材38を設けている。

【0032】連結部材38は、中空構造物2の長手方向において全長にわたる長さで且つ幅方向において2つの側壁部材4・4の下縁の各内側突縁部10・10に達する幅の床版形状に形成されて基礎12上に設けられ、幅方向の各側縁を対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10に図示しない連結具により連結される。なお、連結部材38は、現場打ちコンクリートにより形成することもできる。

【0033】第4実施例の中空構造物2の支持構造は、移動防止手段16として、対向立設される2つの側壁部材4・4の下縁の各内側突縁部10・10を連結するとともに、長手方向に連結されるすべての対向する2つの側壁部材4・4の下縁の各内側突縁部10・10を連結する連結部材38を設けていることにより、2つの側壁部材4・4の各下縁に引張力を作用させてこの2つの側壁部材4・4の各下縁が広がることを確実に防止できるとともに、2つの側壁部材4・4の各下縁に押圧力を作用させてこの側壁部材4・4の各下縁が内側にすばまることを防止できる。

【0034】このため、第4実施例の中空構造物2の支持構造は、中空構造物2の全長にわたり対向配設される2つの側壁部材4・4を堅固に支持し得て、幅方向への変形を確実に防止することができる。また、第4実施例の中空構造物2の支持構造は、移動防止手段16の連結部材38を中空構造物2の床版部材としても利用することができ、移動防止と床版との2つの機能を併せもたせることができ、コストの低減を果たすことができる。

【0035】

【発明の効果】このように、この発明の中空構造物の支\*

\*持構造は、幅方向に対向立設される2つの側壁部材の各下縁が幅方向へ移動することを防止する移動防止手段を設けたことにより、幅方向に対向立設される側壁部材の各下縁が幅方向へ移動することを防止できる。

【0036】このため、この発明は中空構造物の支持構造は、対向配設される2つの側壁部材を堅固に支持し得て、幅方向への変形を防止することができる。

【図面の簡単な説明】

【図1】この発明の第1実施例を示す中空構造物の正面図である。

【図2】図1の中空構造物の側面図である。

【図3】第2実施例を示す中空構造物の正面図である。

【図4】図3の4-4線による断面図である。

【図5】第3実施例を示す中空構造物の正面図である。

【図6】図5の中空構造物の側面図である。

【図7】第4実施例を示す中空構造物の正面図である。

【図8】図7の8-8線による断面図である。

【符号の説明】

2 中空構造物

4 側壁部材

6 上版部材

8 内面

10 内側突縁部

12 基礎

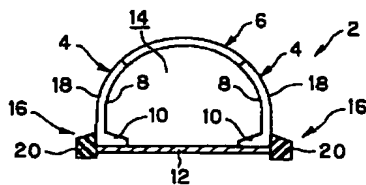
14 空間

16 移動防止手段

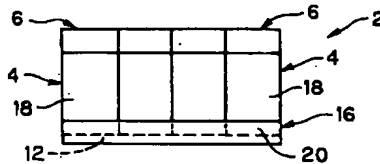
18 外面

20 押さえ部材

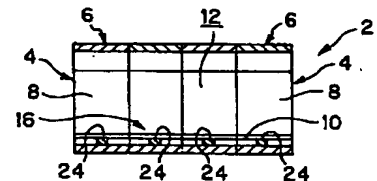
【図1】



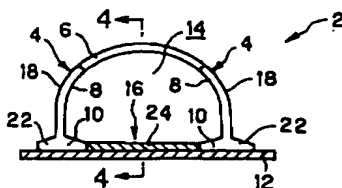
【図2】



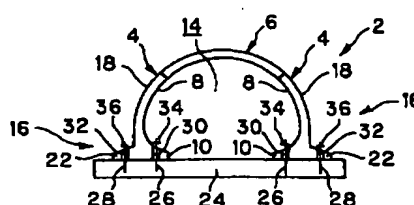
【図4】



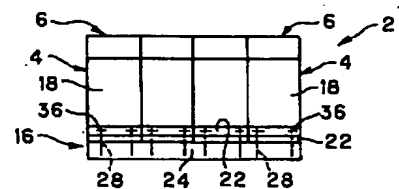
【図3】



【図5】

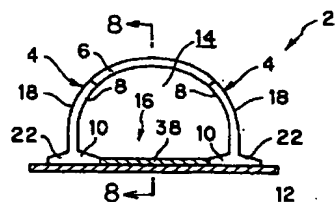


【図6】

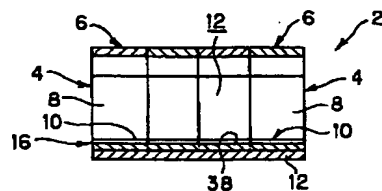




【図7】



【図8】



フロントページの続き

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